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VENTURE CAPITAL IN JAPAN

Summary

After reaching epidemic proportions in the United States, venture capital fever has infected Japan. As the nation begins to redirect the thrust of its economy from the traditional smokestack configuration toward knowledge-intensive industries, it has watched with envy the high degree of innovation and creativity in the U.S. economy that has been fueled primarily by venture capital. In attempting to emulate American achievements, Japan faces cultural and structural shackles that prevent the development of venture capital and venture business along U.S. lines. In order to compensate for these weaknesses, the Japanese government has devised direct and indirect measures to support this fledgling industry. The problems, status and prospects of Japan's venture capital market are described in this report.

What is Venture Capital?

Venture capital, in the U.S. context, can be defined as a professionally managed pool of private capital devoted to funding new businesses started by entrepreneurs with a innovative product. Venture capitalists provide infusions of financial resources to inventors who are unable to convince more traditional financiers to back their projects. Venture funds can provide the seed money to establish a company or pay for product development, production and marketing. In return, investors can reap huge capital gains when a firm goes public after establishing its growth potential. It is important to note that until the venture business goes public, the backer usually receives no return on his investment. Thus, innovative products, which might not have made it to market,

have been successfully commercialized because this inexpensive source of capital was available.

Venture capital differs significantly from traditional investment vehicles in several other important respects. Venture capitalists are willing to bear a high amount of risk in their investments in return for capital gains. Characteristically, the emphasis is on new products and new businesses; it is unusual for a venture fund to invest in an old-line firm, or in a company that did not start out as a venture business. This does not rule out joint ventures with established firms to create new enterprises, however. Further, in most cases only proposals that offer very high rates of growth attract venture capital. Venture money has therefore tended to bolster pioneering firms, such as biotechnology companies, or those that can carve out a niche in a fast-growing industry (electronics or service firms, for example). Finally, venture capitalists are not subject to government regulation and can make decisions very quickly, and with unparalleled agility.

The United States: Venture Capital Hothouse

In many respects, the United States is heaven on earth for venture capitalists -- a situation that has been studied by Japan and other countries hoping to set off their own venture capital boom. U.S. cultural and economic factors combine in a complex and subtle fashion to form the free-wheeling environment venture managers and budding businessmen need to flourish. Isolating these factors and interactions is difficult and the following discussion of key points is by no means exhaustive.

Economic Factors - As the United States entered the post-industrial era in the 1960s and 1970s, the country faced a decline in comparative advantage in basic smokestack industries. Capitalizing on the tremendous amounts of money poured into research and development, the nation's economic strategy began to shift toward services and high technology industries. Venture capital was a major force supporting this shift. As the changes gained momentum, the environment became even more favorable and the number of venture startups began to snowball.

The rapid advance of the technological frontier and the heavy demand for services tended to favor small firms that could profitably target a discrete market and move quickly to meet its needs. Big firms were too rigid to adapt to rapidly changing markets; nor could they fund and develop every product made possible by technological breakthroughs. The technology revolution opened up a vast array of markets, leaving plenty of room for both large and small enterprises. By focusing on specialty markets or developing new ones, small firms avoided direct competition with large corporations and opened the door to explosive growth.

Finally, the U.S. government provided a positive climate for venture activities through tax laws that favored both individual and corporate capital gains. Regulatory structures that gave venture managers a relatively free hand in structuring portfolios also helped. More direct support was offered through the Small Business Act of 1958, which sparked the creation of small business

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investment companies (SBICs). In the early years, SBICs, under the eye of the Small Business Administration, provided equity and long-term loans to small entrepreneurs. To compensate for the modest return earned from interest payments, SBICs began to incorporate stock-purchase options into their loan packages, heightening their interest in venture activities. In 1983, 285 SBICs invested $412.9 million in 2,464 deals, 61 percent of which were with companies under three years old and 28 percent of which were startups.

A wide variety of financial instruments is available to venture fund professionals, allowing them to tailor their offerings to the needs of investors and borrowers. In fact, new instruments are often created in response to new opportunities. Flexible financial structures have played an important role in quickly channeling funds to new companies with new needs. The existence of a well-developed system for selling and trading shares in small firms has also fostered the venture industry. The NASDAQ (National Association of Securities Dealers Automated Quotation system) over-the-counter (OTC) market permits small companies to go public and allows venture investors to unload their holdings. The increased liquidity the NASDAQ system offers helps lower the risk to both borrowers and investors.

Effects of Cultural Factors - The American psyche itself has been responsible for the flowering of venture financing and enterprise. U.S. society rewards risk taking, individual initiative and personal success, and values independence, individual wealth and personal enjoyment. Venture activities are not only accepted but encouraged and admired.

A high degree of job mobility in high technology and services industries is also important. The list of major computer companies established by ex-employees of other electronics firms is long and continues to grow. The willingness to leave an employer coupled with the social approval attached to independence is vital to the proliferation of innovative venture businesses. Equally important is the deep reservoir of trained people available in both the financial and technical fields. Foresight and creativity must be complemented by technical skill. In addition, there must be enough skilled people to spark and sustain a venture industry.

The synergy between these structural and cultural factors has created an industry where annual returns of 30 to 40 percent are expected and considered the norm. While individual venture capital successes exist in every Western industrialized country, none have yet experienced a full-fledged explosion similar to the one helping fuel U.S. growth. Japan has tried to transplant the American experience, and while its efforts are beginning to pay off, its venture industry is small by comparison with its U.S. tutor and far behind in terms of maturity.

Japan's Venture Capital: Cutting Down A Forest of Obstacles

Through the 1960s and 1970s, Japan's governmental, institutional, cultural and economic conditions stifled venture capital funds and straightjacketed daring entrepreneurs. Only in the past four years have public and private leaders realized the need to change this environment. Japan is also entering the post-industrial phase, and it too seeks to ride a wave of venture capital to a prosperous future.

Governmental Hurdles - With all its energy focused in the immediate postwar period on rapidly rebuilding the war-torn economy, Tokyo decided to emphasize support for big corporations that had the resources to pour into basic industries. Small businesses were seen as appendages of major companies, subservient to national goals. Although a small-business agency was created in the 1960s, its activities were not significant in the country's growth. The neglect continued until just recently and created psychological barriers to venture capital in the bureaucracy and in industry.

Almost overnight, venture capital is on the minds of bureaucrats and politicians. The Ministry of International Trade and Industry (MITI) has embraced its small-business bureau after giving it the cold shoulder for many years. MITI considers venture capital to be so important that it has proposed tax breaks for venture investors, has sponsored conferences and associations, and even offered low-rent commercial space where entrepreneurs can trade ideas and advice as well as pursue their business ambitions. Local governments have also jumped into the fray, with 34 of 46 prefectures sporting some kind of venture business promotion organization. Positive signals are pouring out of Tokyo and businessmen are taking heed.

One incentive favoring venture capital undertakings in Japan is the tax exemption of individual capital gains. Heavy corporate taxes and laws favoring investments in existing companies, however, have inhibited corporate participation in venture funds and severely limited their size. Moreover, the degree of regulation exercised by the government until the 1980s sharply curtailed the range of activities open to financial institutions.

While the tax structure remains relatively unchanged, liberalization of financial markets is now Tokyo's stated aim. The barriers between commercial and long-term credit banks, trust, pension and insurance funds had been eroding under the pressure of competition, but the movement toward decontrol is important because of the increased variety of financial instruments now available. Liberalization will also sharpen rivalries, jarring conservative financiers out of their complacent habits.

Institutional Barriers - Japan's financial system is renowned for its closed and inflexible nature. The excellent credit ratings and collateral required to secure a loan from traditional sources preclude independent application by most small companies. Financial institutions encourage loan officers to fund investments with a mediocre but safe return. Even companies that claim to be venture capitalists often behave conservatively because of links with traditional institutions. Quick, independent decisions are rare in Japan, hobbling efforts to adapt to new conditions or emerging markets.

There is evidence that this situation is slowly changing. Lower economic growth has reduced capital needs in basic industries and lenders are suddenly fighting to land new borrowers. Lower growth reduces profits for financial institutions as well, spurring the search for new high-paying investments. Risk thresholds are being raised, and much more attention is being paid to small companies.

The lack of accessible equity markets also hampers fundraising efforts by small entrepreneurs. Public stock offers are strictly regulated, and the

country lacked an etfective over-the-counter market until early 1984. While a listing on the major stock exchanges is still impossible for new firms, companies with even a limited track record can now take advantage of easier listing requirements instituted for most of the second-section exchanges, which now welcome venture stocks as invigorating as well as lucrative additions.

Japan's OTC market has traditionally been an avenue of last resort for cash-hungry firms, endowing it with a negative image. There are signs, though, that this situation is changing as a result of the addition of OTC markets at the three major Japanese stock exchanges, liberalization of the rules governing the OTC market, and the introduction of a nationwide electronic quotation system similar to the NASDAQ system. Significantly eased rules for public stock offerings have improved the options available to entrepreneurs. The volume of shares traded has increased dramatically since the electronic quotation system went into effect on July 7, 1984, but the taint of listing over the counter has not been entirely purged.

The vaunted lifetime employment system may also dampen venture-minded Japanese by insuring a comfortable career. While the system covers a minority of employees, they happen to be those vital to a venture business, including engineers, financial analysts and managers. Cracks in this institution have also appeared, however. Lower rates of economic growth have not only pressured financial firms but also thrown a monkey wrench into the fine-tuned employment system. Without good growth, companies cannot promote employees as regularly as they once did. With fewer opportunities and less frequent promotions, the lifetime system has lost its sheen in the eyes of those near the bottom of the promotion ladder, increasing the allure of a venture business.

Major corporations and public and private educational facilities in Japan have not encouraged basic research and often carefully control research activities, stunting creativity and innovation. Researchers interested in pursuing a pet project must cross an ocean of red tape or negotiate a maze of bureaucratic politics. Basic research, the source of so many American advances, has received short shrift in Japan until this year, when politicians, businessmen and educators alike suddenly realized that basic, free-ranging research is the key to Japan's future. Private and public efforts are underway to encourage original research and improve information exchanges between public and private R&D centers.

Patent licensing is also being encouraged. Generally, every scientific advance in Japan is patented. These patents are jealously guarded even if they are not used; thousands are held by large corporations that do not have the resources or motivation to utilize them. In response to public and private advisory commission reports, however, some major companies are now considering licensing unused patents to venture businessmen. Government laboratories have long licensed patents to the private sector, and small businesses are now considered viable licensees.

Economic Obstacles - Compared with the 1960s and early 1970s, the Japanese economy today faces a variety of additional demands from industry as well as consumers. High value-added goods and services represent the fastest-growing sectors. The proliferation of demand cannot be met by the existing economic structure, which emphasizes mass goods for mass consumers.

This is opening the door for diversification and making venture business more practicable. Skyrocketing R&D costs also create more opportunities for risk takers since large companies cannot fund every project. By focusing research on one product, many small companies can bring to market products big companies consider marginal.

Slower economic growth has had several other important consequences. One of the more important is the surfeit of investment funds as large companies reduce their borrowing. With more and hungrier investors, the siren song of high-growth venture business is capturing more listeners. There are also more singers today in Japan. A large pool of entrepreneurs developed when major manufacturers jettisoned many of their subcontractors as demand for their products fell. These companies, which possess solid managerial and manufacturing experience, suddenly find themselves closed out of their traditional markets and are compelled to enter new ones if they are to survive.

Slower growth also means reduced employment demand by large companies, improving small firms' chances of attracting talent. While it is true that demand by major corporate entities for graduates of top-flight universities will remain strong, positions with small, innovative firms will become more viable as successful venture businesses proliferate.

Cultural and Human Factors - This category is probably the most important and the most difficult to evaluate. The Japanese value reticence, conformity and the importance of the group -- a poor mix for the growth of a high-risk, fast-moving venture capital industry. And while the Japanese have always been excellent businessmen and famously able to adapt to new situations, it may be that successful venture activities require changes in the national psychology.

A generational difference between top- and mid-level management may help to explain the increasing interest of mid-career employees in striking out on their own. The younger generation is less conservative and not as complacent. They also tend to be more interested in personal success and well-being. For some, venture business offers a faster and more exciting ride to the top. The founder-presidents of new, dynamic companies who serve as role models for the current generation are establishing alternative definitions of success. While the demonstration effect of these mavericks cannot be measured, it certainly should not be underestimated.

Risk-taking must also be fostered if Japan's venture industry is to thrive. While innovation in pursuit of economic growth should be rather easy to accept, risk-aversion remains deeply ingrained. Rising national prosperity and awareness of Japan's global economic strength may improve the risk equation, but it will be some time before Japanese accept job changes and risky ventures with nonchalance.

Decisionmaking by consensus poses another serious hurdle to venture capitalists. They must be free to arrange new deals and bail out of old ones as they see fit. Even small firms have difficulty in this respect, and no general solution has surfaced. Individual decisionmaking is not encouraged in school or on the job -- a handicap that has limited the development of a broad venture industry and must be addressed.

The Current Japanese Venture Boom

Venture capital is not new to Japan; some of today's industrial giants, including Sony Corp. and Honda Motor Co., Ltd., began as venture startups after World War II. It was not until the 1960s, however, that Japan's first venture capital boomlet occurred with the establishment of eight venture funds. While the time may have been ripe for venture capitalists, it was not right for venture business. The first oil shock and the 1974-75 recession made parodies of optimistic projections for the venture business, and by the mid-1970s seven of the venture funds had moved into traditional financing and one had folded. In the past two years, though, venture capital companies have been multiplying like rabbits and venture businesses sprouting up like weeds.

Venture Capital - About 30 venture capital firms have been established since 1982. (See Table 1 for profiles of some of these companies. Also see Table 2, which presents information on the top U.S. companies for comparison.) While it is now possible for individuals to undertake venture activities through the OTC market, established firms account for the vast majority of high-risk investments.

This second wave of venture capitalists consists primarily of offshoots from banks and securities firms. Six firms from the first venture boom have also returned to riskier activities, but they are understandably skeptical about the industry's future. The major securities firms and banks jumped into the market in 1982, and a second tier of banks, securities firms and insurance companies followed shortly thereafter.

Because banks and their affiliated institutions are required to have collateral clauses in their loan contracts, their venture capital subsidiaries tend to be more conservative and are handicapped in comparison with other venture capitalists. In contrast, fund managers associated with securities companies have been very aggressive in creating investment business associations, a kind of tax shelter that makes it easier to raise venture funds. The Japan Associated Finance Co., Ltd. has already organized six associations with capital totaling Y23.5 billion ($96 million). Because these investment associations do not guarantee the principal on their loans, bank-affiliated venture firms cannot utilize this instrument.

By the end of 1983, an estimated Y40 billion ($163 million) had been invested in small companies by these capital merchants. From the scanty data available, it appears that the majority of the money has gone to high technology firms, with the rest relatively evenly spread among light manufactured goods and services industries. In fact, competition to find good venture investments is extremely intense. Fund managers have combed the 60,000 Japanese small businesses and rejected all but approximately 1,500 of them. An announcement of a promising invention prompts a flood of telephone calls and visits from interested investors. There are clearly more lenders than borrowers in the venture market, a point that might presage a shakeout if venture capitalists continue to increase.

Venture Business - Because there is no generally accepted definition of what constitutes a venture business, statistics may vary widely. At best guess, there are about 1,500 new, small, innovative and high-risk firms in

Japan that could be called venture businesses. Statistics on these companies compiled by MITI's Small and Medium Enterprise Agency are presented in Table 3.

According to a late 1983 survey of 500 select venture businesses by Nihon Keizai Shimbun, sales grew 1.7 times from 1979 to 1982; the average age of the chief executive was a comparatively young 48.8 years, with 205 firms reporting presidents of 45 years or younger. These firms each employed about 89 workers whose average age was 31. There were 11 food or biotechnical companies, 18 services firms, 50 precision instrument makers, 81 software houses, and 135 electric equipment producers. R&D outlays averaged 10 percent of sales, and the average firm held 40 patents.

Innovative services are also attracting much attention, as shop-at-home and other care services fall within the reach of an increasing number of consumers. Tie-ups with foreign firms and other venture businesses are an increasingly important feature. If this trend continues, Japan's business structure will become less and less pyramidal, perhaps affecting the country's rigid distribution system, reducing the importance of the major industrial groups, and raising the level of competition. Venture businessmen still face major hurdles, however. The vast majority claim that they are having difficulty maintaining an adequate cash flow, attracting skilled or talented personnel and forging domestic sales and distribution networks.

Links to the International Venture Market - Japan's venture industry owes a great deal to the presence of foreign venturists. Conversely, Japanese venture capitalists and entrepreneurs tend to be very aggressive in overseas activities, and many adventurous firms are moving into the U.S. market where investment opportunities are more plentiful. The general trading companies have been investing in startups through American fund managers for several years, in fact, and in May of this year, Marubeni Corp., Okasan Securities Co., Ltd. and nine other Japanese banks and securities firms formed a joint venture with Burr, Egan, Deleage and Co., a Boston, Massachusetts-based venture management firm, to invest in U.S. high technology companies. Based in Curacao, a Caribbean tax haven, the Alta Jami Fund was initially capitalized at $11 million. Three months later, Orient Leasing Co., Ltd., Japan's largest leasing company, announced it was leading a group of Japanese, British and American firms in creating an international venture capital fund. A British bank, Baring Brothers & Co., Hambrecht & Quist of the United States, and Daiwa Securities Co., Ltd., Sanwa Bank, Ltd. and Dai-Ichi Mutual Life Insurance Co., Ltd. will contribute to the new company's Y300 million ($1.2 million) initial stake.

Japanese venture businesses have also pursued overseas opportunities -- both to raise funds and to market their products. In 1983, Sawafuji Dynameca Co., Ltd., a maker of innovative stereo speakers, raised $2 million from American investors when it had been hoping for $200,000. This experience was so positive that it now has a U.S. subsidiary and is planning forays into the European market. Nippon Ceramic Co., Ltd., with a reputation for innovative piezoelectric ceramics, has established a plant in Ireland to meet growing demand on the continent. Small computer companies have also been active in seeking foreign links. Ai Electronics Corp., a Tokyo maker of personal computers and software, has a joint venture in Singapore and has built links with Taisho Systems, Inc. of San Jose, California and Ziegler Instruments

G.m.b.H. of West Germany to market its products in those countries. Ireland has also captured investments by Logic Systems International Inc. and Sord Computer System Inc., both headquartered in Tokyo. Sord and Nippon Computer Co., Ltd. have established sales offices in New York City targeting the huge U.S. market.

Foreign companies have provided a critical impetus to Japan's venture capitalists by showing that it could be done there. TA Associates (Boston, Massachusetts), Kleiner, Perkins, Caulfield & Byers (San Francisco, California), CitiCorp Venture Capital Ltd. (New York City), along with some American accounting firms, have been operating in Japan on their own, but more often in conjunction with Japanese partners. Estimates of the amount of foreign venture capital poured into Japan range from $40 to $80 million at the end of 1983. This amount is from one-quarter to one-half of Japan's total venture investments -- a significant market presence. More than the money, however, foreigners have contributed concepts and techniques that have provided a major boost to domestic industry.

At the same time, some foreign venture companies have been seeking Japanese investors or hope to penetrate Japan's markets. Gigabit Logic Inc. (Newbury Park, California) is taking on Japan's electronic giants in the race to market super-fast gallium arsenide integrated circuits; and Genentech Inc. (San Francisco, California) has probed for investors in its biotechnology business.

Government Support for Venture Capital

While the White House and Congress have provided some indirect support for the U.S. venture industry, Tokyo has tried to encourage this high-risk sector directly.

MITI Programs - MITI's Small and Medium Enterprise Agency fosters venture industry in several ways. It provides a long-term "vision" of what it considers desirable development. These visions usually have no quantitative effects, but they do provide psychological sanction to entrepreneurs. Discussions with banks, local governments and venture industry leaders occupy much of the agency's time. By acting as a forum for the exchange of ideas, it identifies problems, develops solutions, and offers advice. A more important contribution is the agency's Center for the Development of R&D Oriented Enterprises or Venture Enterprise Center (VEC).

Inaugurated in 1975, VEC provides loan guarantees to small businessmen. If the company meets VEC's standards for technical and managerial competence, it can borrow up to Y100 million ($408,000) for R&D purposes at 4 percent interest from a conventional lender with VEC guaranteeing 80 percent of the loan. The guarantee period is from one to eight years, at the end of which the loan must be repaid. VEC charges a 2 percent loan fee, and can receive a bonus of 5 to 50 percent of the principal if the borrower makes a substantial profit. At the end of 1983, VEC had guaranteed 202 loans worth about Y6 billion ($27 million) and had received success bonuses from six companies. It has done this with just Y250 million ($1 million) in capital and a Y1.25 billion ($5 million) credit guarantee fund. An important factor in its success has been its access to money collected from bicycle racing, which it channels

to financial institutions at a charge of just 0.9 percent interest. Lenders can therefore still make a satisfactory profit on 4 percent loans.

Local Promotion Efforts - To date, 34 of 46 prefectures and eight major cities have established venture promotion funds on the VEC model. The major points of these programs are listed in Table 4. Most offer funds at 6 to 8 percent interest for up to 10 years for both operating and equipment expenses. Their major function is to provide intermediary and information services to both providers and seekers of capital.

Tax Policy - At present, no tax breaks are specifically targeted for venture capital activities, although credits for R&D costs are offered. There is a movement to provide a tax credit equivalent to 25 percent of the dividends received from venture investments and allow some write-offs for small businesses in high technology fields. Because of concerns over ballooning budget deficits, it is unclear at present what chances these proposals have.

Regulatory Environment - More importantly, the government can improve the environment by continuing to liberalize financial markets and reduce regulatory intrusions. The increasing degree of competition brought on by decontrol will hone money managers' skills and increase the flow of funds to dynamic sectors. As more financial instruments become available and equity markets mature, the flexibility to meet investors' and borrowers' needs will be enhanced.

The government of Japan has made a clear commitment to helping its venture industry mature as rapidly as possible. It is critical to note that Tokyo considers indirect policies at least as important as direct support and that it believes Japan's venture capital market must be open in order to develop into a robust industry.

A Brief Comparison of U.S. and Japanese Venture Industries

While there are some similarities between the venture industries of the United States and Japan, the differences are much more interesting.

Venture Capital - Emphasis on fast-growing, new-product companies is characteristic of both countries' industries, but there is a clear difference in the degree of risk considered acceptable in Japan and the United States. U.S. venture capitalists are funding more companies at the protean stage when an entrepreneur has nothing more than an idea to sell. Japanese managers tend to seek out companies that have readily marketable products and some proven track record.

Different investment structures are employed as well. American investors demand equity positions in return for capital, while their Japanese counterparts tend to grant low- or no-interest loans. Much of this derives from the spin-off nature of Japanese venture capital firms, which act as pointmen for the parent institution, creating new customers and long-term business relationships. Because of this difference, American venture capitalists often become intimately involved in the management of the business -- not always an advantage. While Japanese venture capitalists are certainly

willing to offer management advice, most venture borrowers neither seek it nor are required to accept it.

The American venture capital industry has a wide range of institutionalized procedures for linking lenders and borrowers. While Japan is adopting some of these mechanisms, borrowers and lenders still find it difficult to make connections. At the end of 1983, for example, U.S. venture managers had available or had invested $12 billion, far outpacing Japan's approximately $160 million total. In 1983 alone, new capital commitments by U.S. investors totaled $4.1 billion and disbursments reached $2.8 billion. While similar Japanese statistics do not exist, it is unlikely that the figures would be one-tenth as large. The biggest Japanese venture fund is capitalized at Y1 billion ($4 million), while there are very few U.S. funds with an initial stake of less than $10 million and megafunds of $150 million-plus are no longer unusual (see Tables 5 and 6). The American venture capital industry has grown so large that it is actually experiencing some of the same problems the Japanese are facing: a shortage of trained fund managers and intense competition for the best investments.

Venture Business - The differences between the two countries' venture businesses are more subtle despite the common emphasis on high technology fields and services. Both countries possess old and new venture firms, but the older U.S. firms have tended to stick with their original lines of business, while older Japanese firms have often shifted fields once or twice. U.S. companies, in addition, tend to be more heavily capitalized, the difference hovering around a factor of ten. In part this has to do with the larger average size of U.S. venture firms, but it also mirrors the availability of funds. As American entrepreneurs once did, Japanese trailbazers rely on their own financial resources or funds borrowed from friends and relatives. This could change as the Japanese market matures, however.

Outlook

Analysts agree that Japan's pool of venture capital will grow significantly in the next few years, with estimates running anywhere from 50 percent to 150 percent. Many new companies, both Japanese and foreign, are likely to enter the market, the level of managerial skill will continue to improve, and more startups will be funded.

Forecasters see the sales of venture businesses doubling by the end of FY 1985 (March 30, 1986). Biotechnology companies expect business to increase 200 percent over the next three years; consulting firms, 136 percent; computer and software firms, 133 percent; electronics makers, 104 percent; and precision equipment producers, 97 percent. Capital spending should increase over 25 percent a year through 1986 and R&D outlays will continue to eat up 10 percent or more of sales. While these predictions are impressive, it should be remembered that Japanese venture businesses are usually a magnitude smaller than their U.S. counterparts and their impact on GNP growth will likely remain small. Their contribution to the country's technology pool should be significant, however.

Cultural change should also continue to improve the environment for the venture industry. Society will become increasingly tolerant of maverick

behavior, and the definition of success should continue to shift toward a focus on the individual. Attitudes toward employment and entrepreneurship should also move in favorable directions, but decisionmaking most probably will remain mired in the consensual mode.

Institutional factors should tilt more in favor of venture participants as big companies move toward direct involvement in venture markets and financial markets are liberalized. Foreign companies will remain a significant factor, encouraging Japanese firms to change their standard operating procedures. Educational reforms may breed more independent businessmen and almost certainly will provide better R&D inputs both in terms of discoveries and human resources. It is not certain that government support for venture capital will increase, but Tokyo is expected to continue to improve the venture environment by liberalizing markets and reducing burdensome regulations.

In sum, venture capital in Japan has made huge strides in the past few years, yet remains a toddler beside the mature U.S. industry. Prospects for continued rapid growth are very good. Whether it can ever catch up with its U.S. mentor is another question.

For further information, contact Jon Choy.

The views expressed in this report are those of the author and do not necessarily represent those of the Japan Economic Institute.

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Table 1: Japanese Venture Capital Companies, FY 1983

(in millions of yen)

Affiliates of Securities Company	Established	Capital	Major Stockholder	No. of Stockholders	Outstanding Balance	No. of Investments	Operating Income	Net Profits	Dividends
Japan Associated Finance	4/73	Y1,000	Nomura Securities	63	Y12,345	96	Y9,913	Y606	Y12
Yamaichi General Finance	12/73	600	Yamaichi Securities	42	1,180	35	3,231	397	10
Nippon Investment Finance	7/82	1,000	Daiwa Securities	20	2,000	23	*	*	0
Sanyo Finance	7/82	160	Sanyo Securities	4	1,000	12	788	24	0
Yamaichi Univen	11/82	50	Yamaichi Securities	7	600	7	37	(12)	0
New Japan Finance	12/82	500	New Japan Securities	10	500	10	286	0.7	*
Wako Finance	12/82	300	Wako Securities	13	150	5	9	0.6	0
Marusan Finance	3/83	20	Marusan Securities	*	25	5	*	*	*
Okasan Finance	4/83	100	Okasan Securities	15	(150)	5	(30)	*	*
Kansai Venture Capital	5/83	500	Osakaya Securities	48	*	*	13	(4)	*
Maruman Finance	6/83	100	Maruman Securities	13	(4)	*	(600)	(10)	0
Nikko Venture Capital	7/83	800	Nikko Securities	26	*	*	10	(3)	0
National Kogyo	8/83	20	National Securities	7	*	*	*	*	*
Toyo Finance	10/83	100	Toyo Securities	11	*	*	*	*	*
Dai-Ichi Capital	10/83	200	Dai-Ichi Securities	23	*	*	*	*	*
Bank Affiliates									
Nippon Enterprise Development	11/72	900	Long-Term Credit Bank C. Itoh & Co.	28	2,539	80	2,355	129	0
Central Capital	1/74	600	Bank of Tokyo	19	1,827	32	2,026	101	6
Tokyo Venture Capital	4/74	600	Dai-Ichi Kangyo Bank	19	1,615	49	1,003	309	0
Diamond Capital	8/74	500	Mitsubishi Bank	21	2,206	80	419	114	0
Fuji Investment	7/83	450	Fuji and Yasuda Banks	9	*	*	*	*	*
Sanwa Capital	12/83	*	Sanwa Bank	*	*	*	*	*	*
Kyushu Capital	9/83	*	Fukuoka Sogo Bank	*	*	*	(488)	(26)	0
Hyogin Factors	12/79	*	Hyogo Credit Service (?)	*	*	*	1,863	101	10
Others									
Oriental Capital	10/83	300	Oriental Leasing Baring Brothers & Co. (U.K.) Hambrecht & Quist (U.S.)	7	*	*	*	*	*
Nagoya Capital	10/82	*	Okatoku Bldg.	*	155	4	*	5	*
Alta Jami N.V.	5/84	2,695	Marubeni Corp. Burr, Egan, Deleage & Co. (U.S.)	12	*	*	*	*	*
Fidelity Japan	10/80	*	Fidelity International (Bermuda)	*	*	*	*	*	*

*Not available.

Source: Ministry of International Trade and Industry, Venture Business Research Group.

Table 2: U.S. Venture Capital Companies, 1983

(in millions of dollars)

Company	Total		Seed/Startup		Later Stage		Follow-On		Buyouts	
	Value	Number	Value	Number	Value	Number	Value	Number	Value	Number
Hillman Co.	$102.10	66	$16.70	14	$24.74	19	$46.33	27	$11.33	6
General Electric Venture Capital Corp.	88.00	25	2.00	4	39.00	6	47.00	15	0.00	0
TA Associates	85.01	39	24.62	15	41.55	10	9.30	10	9.54	4
First Chicago Investment Corp.	82.10	50	7.50	8	15.90	9	28.90	24	29.80	9
Citicorp Venture Capital Ltd.	79.60	82	23.60	28	18.00	13	16.50	31	21.50	10
Hambrecht & Quist Inc.	69.00	106	20.00	20	27.00	35	22.00	51	0.00	0
Warburg, Pincus Capital Partners	58.46	52	40.65	10	11.40	5	12.71	35	23.70	2
Allstate Insurance Co., Venture Capital Division	55.50	42	17.70	12	20.40	11	12.40	18	5.00	1
Security Pacific Venture Capital Group	44.24	26	8.30	5	6.40	5	0.94	4	28.60	12
Brentwood Associates	41.54	63	22.57	23	0.00	0	18.97	40	0.00	0
Kleiner, Perkins, Caulfield & Byers	41.00	43	14.00	12	12.00	7	15.00	24	0.00	0
Adler & Co.	40.10	52	9.50	16	2.10	3	28.50	33	0.00	0
Walsh, Carson, Anderson & Stowe	38.10	32	15.30	15	2.70	2	14.50	12	7.60	3
Robertson, Colman & Stephens Venture Fund	33.50	81	5.30	11	19.60	32	8.60	38	0.00	0
Norwest Venture Capital	31.84	49	10.85	13	3.45	4	11.24	28	6.29	4
Golden Gate Investments Inc.	31.80	61	18.60	43	0.00	0	13.20	18	0.00	0
Rothschild Ventures Inc.	31.60	40	8.90	14	6.90	8	15.80	18	0.00	0
Oak Investment Partners	31.10	53	16.40	20	0.00	0	14.70	33	0.00	0
Concord Partners	30.40	28	7.60	10	13.60	7	4.20	8	5.00	3
Venture Lending Associates	30.00	2	0.00	0	0.00	0	0.00	0	30.00	2
BT Capital Corp.	29.80	13	12.20	3	1.10	2	0.00	0	16.50	8
Cable, Howse & Cozadd Inc.	29.40	40	*	*	*	*	*	*	*	*
Burr, Egan, Deleage & Co.	29.00	39	*	11	*	4	*	24	0.00	0
Mercantile Dallas Corp.	28.42	65	3.19	10	9.50	26	14.38	26	1.35	3
John Hancock Venture Capital Fund	25.50	32	3.35	6	20.85	23	0.30	2	1.00	1
J.H. Whitney Co.	24.40	32	13.00	12	1.00	1	5.60	16	4.80	3
Lawrence, WPG Partners	23.25	30	5.60	6	1.85	2	12.50	19	3.30	3
Churchill International	23.24	24	2.50	4	2.49	5	18.24	15	0.00	0
Montgomery Bridge Fund	23.00	37	0.00	0	0.00	0	23.00	37	0.00	0
New Enterprise Associates L.P.	21.50	64	7.10	15	7.50	15	6.90	34	0.00	0

Source: "Venture Capital 100," Venture, June 1984.

Table 3: Survey of Japan's Venture Business

(percentage of total firms in each category)

3a. Capital
(in billions of yen)

	Total Firms	Indi-viduals	Under 0.1	0.1-0.3	0.3-0.5	0.5-0.7	0.7-1.0	1.0-3.0	3.0-5.0	5-10	Over 10	Not Clear
VB*	847	5	170	238	141	74	73	90	26	21	9	11
Percent	100.0%	0.6	20.1	28.1	16.6	8.7	8.6	10.6	3.1	2.5	1.1	
SB**	1,531	63	427	453	197	81	68	96	25	24	97	25
Percent	100.0%	4.1	27.9	29.6	12.9	5.3	4.4	6.3	1.6	1.6	6.3	

3b. Employees

	Total Firms	Under 4	5-19	20-49	50-99	100-199	200-299	300-499	500-999	Over 1,000	Not Clear
VB	848	25	167	196	175	134	54	51	34	12	10
Percent	100.0%	3.0	19.7	23.1	20.6	15.8	6.4	6.0	4.0	1.4	
SB	1,544	48	246	478	331	166	68	50	65	92	12
Percent	100.0%	3.1	15.9	31.0	21.4	10.8	4.4	3.2	4.2	6.0	

3c. Annual Sales
(in billions of yen)

	Under 0.5	0.5-1	1-3	3-5	5-7	7-10	10-15	15-20	20-30	30-40	40-50	50-100	Over 100
VB	4.0%	4.6	17.9	12.2	7.8	6.9	10.0	5.3	8.2	4.8	2.8	8.6	6.9
SB	4.5%	4.4	21.4	14.5	11.3	11.3	10.1	6.4	5.2	3.8	2.3	3.5	1.6

3d. Ordinary Profit
(in billions of yen)

	Loss	0.00-0.01	0.01-0.02	0.02-0.05	0.05-0.1	0.1-0.3	0.3-0.5	0.5-1.0	1.0-5.0	5.0-10.0	Over 10.0
VB	6.8%	7.1	5.4	6.3	9.3	16.3	9.7	12.8	17.5	4.3	4.6
SB	20.4%	8.5	6.7	11.3	10.2	16.8	8.3	9.4	7.3	0.6	0.5

3e. Ordinary Profit/Sales Ratio
(in percent)

	Loss	0-1	1-3	3-5	5-7	7-10	10-15	15-20	20-25	25-30	30-40	Over 40
VB	6.8%	11.0	19.2	17.3	12.1	11.2	10.5	5.9	2.6	1.2	1.9	0.6
SB	20.4%	15.1	21.4	13.9	10.2	8.6	5.6	2.5	0.9	0.9	0.6	0.5

3f. Age of Firm
(in years)

	Under 1	1-3	3-5	5-7	7-10	10-15	15-20	20-30	30-40	Over 40
VB	0.2%	4.4	5.6	5.7	12.2	21.9	12.7	17.9	12.0	7.4
SB	0.2%	0.7	1.7	1.8	5.4	13.4	13.8	24.8	24.7	13.5

3g. Market Share
(in percent)

	Under 1	1-5	5-10	10-20	20-40	40-60	60-80	80-100
VB	17.1%	15.3	12.1	12.3	16.3	12.5	7.4	7.0
SB	28.1%	24.3	16.3	9.7	10.3	4.8	3.5	3.2

3h. Industry Distribution of Venture Firms

Industry	Percent	Industry	Percent	Industry	Percent
Food Products	2.2%	Leather Products	0.0	Wholesale	4.6
Textiles	1.0	Nonmetallic Minerals	2.3	Retail	1.0
Apparel	0.9	Iron and Steel	1.2	Transportation	0.3
Wood and Wood Products	0.6	Nonferrous Metals	1.4	Computer Software	13.4
Furniture	0.4	Fabricated Metal Products	4.0	Information Management	3.2
Pulp and Paper	0.8	Nonelectric Machinery	9.2	Information Services	0.0
Publishing and Printing	0.8	Electric Machinery	21.2	Other Information Services	0.5
Chemicals	5.0	Transportation Equipment	1.8	Other Services	2.6
Oil and Coal	0.0	Precision Machinery	9.0	Other	3.1
Rubber Products	0.6	Other Machinery	8.6		

3i. Distribution of Venture Firms by Manufacturing Industry and by Field

Industry	VB	SB	Industry	VB	SB	Field	VB	SB
Food Products	3.1%	11.4%	Leather Products	0.0	0.5	Telecommunications	0.9	1.0
Textiles	1.4	5.0	Nonmetallic Minerals	3.2	4.9	Electronics	18.5	4.1
Apparel	1.3	7.9	Iron and Steel	1.7	1.3	Robotics	10.1	1.2
Wood and Wood Products	0.8	4.6	Nonferrous Metals	2.0	1.1	Biotechnology	3.0	0.2
Furniture	0.6	1.6	Fabricated Metal Products	5.6	11.3	New Materials	4.3	0.5
Pulp and Paper	1.1	3.1	Nonelectric Machinery	13.0	5.9	Energy	1.4	0.4
Publishing and Printing	1.1	5.6	Electric Machinery	14.9	9.4	Other Manufacturing	37.9	77.3
Chemicals	7.0	3.0	Transportation Equipment	2.5	4.9	Software Systems	15.0	0.2
Oil and Coal	0.0	0.7	Precision Machinery	12.7	13.2	Management and Marketing	1.4	0.8
Rubber Products	0.8	1.5	Other Manufacturing	12.1	13.2	Fashion Design	1.5	3.5
						Other	6.0	10.8

3j. Research and Development Outlays/Sales Ratio
(in percent)

	Under 0.5	0.5-1.0	1.0-1.5	1.5-2.0	2-3	3-4	4-5	5-7	7-10	10-15	15-20	Over 20
VB	9.8%	12.7	9.1	8.8	11.9	6.0	8.8	7.4	9.6	7.2	2.4	6.3
SB	37.0%	21.5	12.6	6.4	7.4	4.4	3.9	2.3	2.7	1.0	0.7	0.0

3k. Research and Development Personnel
(percentage of total firms in category)

	Overall Average	5	10	15	20	25	30	35	40	Over 40
Venture Companies	17.4%	33.2	22.3	14.4	6.8	3.7	4.1	2.2	1.7	11.6
Small Companies	5.1									
Big Companies	7.3									
All Industries	6.9									

3l. Sources of Finance

	Owner Funds	Borrow from Bank	Issue Stock	Borrow from Relative	Borrow from Friends	Borrow from Business Connection	Borrow from Former Company	Borrow from Credit Company	Other
VB	72.7%	49.3	23.2	17.7	16.1	2.3	0.9	0.9	2.7
SB	62.9%	56.1	14.5	9.9	5.1	3.0	1.8	1.2	3.1

*VB = Venture Business
**SB = Small- and Medium-Sized Business

Source: Ministry of International Trade and Industry

Table 4: Venture Capital Funds of Local Governments

	Established	Capital (millions of yen)	Use of Funds	Interest Rate	Term (years)
Prefecture					
Hokkaido	1984	Y80	Equipment	7.0%	10
Aomori	1982	25	Operating and equipment	6.7	7-10
Iwate	1978	3.2	Operating and equipment	0.0	7
Yamagata	1982	10	Operating and equipment	6.5	5-10
Miyagi	1984	40	Operating and equipment	7.1-6.6	variable
Tokyo To	1977	70	Technology commercialization	6.4	7
Kanagawa	NA	50	Technology R&D	5.8	5-10
Chiba	1979	130	Operating and equipment	6.0	5-7
Saitama	1984	50	New materials, biotechnology, microelectronics	6.0	7-10
Ibaraki	1981	30	Operating and equipment	5.8	7
Yamanashi	1974	25	Operating and equipment	6.5	5
Tochigi	1984	30	New and improved manufacturing techniques	6.0	3-6
Gumma	1980	50	R&D, commercialization	5.7	10
Nagano	1975	30	Operating and equipment	6.3	5-7
Shizuoka	1983	45	R&D, commercialization of biotechnology, fiber optics, electronics	5.8	5-7
Aichi	1976	30	energy and technology R&D, R&D equipment	6.2-6.4	5-7
Gifu	1982	30	R&D, test projects	6.5	5-7
Mie	1984	50	R&D equipment, tests	NA	NA
Ishikawa	1984	30	Technology R&D, commercialization	5.5	10
Osaka Fu	1983	100	Technology commercialization	5.5	7-10
Hyogo	1982	50	R&D equipment, operating	6.6	7
Kyoto Fu	1983	50	Machinery and equipment for new products and technologies	5.0	7
Fukui	1984	50	Plant and equipment	6.4	7
Shiga	1977	20	Commercialization of new technologies and products	7.1	7
Nara	1984	50	Operating and equipment for new technologies, products and systems	6.5	7
Wakayama	1984	50	Technology R&D, commercialization	6.0	10
Hiroshima	1983	50	Operating and equipment	6.4	7
Fukuoka	1978	25	Operating and equipment	NA	5-8
Yamaguchi	1981	60	Operating and equipment	6.5	5-7
Ehime	1984	50	Operating and equipment	6.8	5-10
Kochi	1983	95	Technology R&D	5.3	7-10
Kumamoto	1983	100	Equipment	5.7	7
Oita	1983	20	R&D equipment, personnel, tests	4.0	5
Nagasaki	1982	50	Equipment	5.5	7
Saga	1983	30	Operating and equipment	5.0	5-7
City					
Sapporo	1981	20	Operating and equipment	6.0	7
Yokohama	1976	30	Physical plant	6.8	variable
Nagoya	1984	50	R&D, commercialization	6.0	7
Osaka	1983	50	Technology commercialization	6.4	7
Kobe	1982	50	R&D equipment, tests	6.5	7
Kyoto	1960	30	R&D equipment, tests	5.0	7
Kitakyushu	1980	30	R&D equipment, tests	5.8	10

Source: Ministry of International Trade and Industry

Table 5: Fastest Growing Japanese Venture Businesses

(in millions of yen; percentage change from previously listed period in parentheses)

Company	Type of Business	Sales FY 1979	FY 1982		FY 1985	
Seillac Co., Ltd. (Tokyo)	computer graphics	--	Y800		Y15,000	(1,775%)
M.C.L. Co., Ltd. (Yokohama)	precision casting	Y585	1,053	(80%)	9,900	(840)
Miyama Co., Ltd. (Toda, Saitama)	industrial laser systems	200	700	(250)	6,000	(757)
Matsunaga Shoryoku Giken K.K. (Saga, Saga)	personal NC machine tools	53	50	(-5)	400	(700)
Nippon Robomation Co., Ltd. (Tokyo)	robot system engineering	--	130	(---)	4,000	(669)
Nihon Information Center Co., Ltd. (Tokyo)	kanji information processing	300	1,500	(400)	10,000	(567)
Mizuho Shokai Co., Ltd. (Nagoya)	ultrasonic measuring instruments	125	287	(130)	1,500	(423)
NAIS Corp. (Tokyo)	assembly robots	65	500	(669)	2,500	(400)
ASCII Corp. (Tokyo)	computer software	55	1,634	(363)	8,000	(390)
Shinko Kiko Co., Ltd. (Tokyo)	drilling equipment	753	2,300	(205)	10,000	(335)
Kangyo Denki Kiki K.K. (Tokyo)	semiconductor-related devices	880	2,300	(162)	9,980	(300)
DAC Engineering Co., Ltd. (Kyoto)	assembly robots	352	1,200	(241)	5,000	(317)
Cosmo 80 Co., Ltd. (Tokyo)	computer software	--	2,000	(---)	8,000	(300)
Digital Computer Co., Ltd. (Tokyo)	computer communications networks	2,070	5,000	(142)	20,000	(300)
Sigma Corp. (Kawasaki)	semiconductor etching equipment	110	320	(191)	1,200	(275)
Motoda Electronics Co., Ltd. (Tokyo)	industrial robots	450	980	(118)	3,600	(267)
Densan Co., Ltd. (Tokyo)	computer software	312	722	(131)	2,500	(246)
Zuken Inc. (Yokohama)	CAD/CAM printed circuit boards	300	2,200	(633)	7,500	(241)
Dainichi Kiko Co., Ltd. (Kosai, Yamanashi)	industrial robots	820	4,600	(461)	15,00	(226)

Source: Nikkei Sangyo Shimbun

Table 6: Fastest Growing U.S. Venture Businesses

(in millions of dollars; percent change from previous year in parentheses)

Company	Type of Business	Sales 1981	1982		1983	
Republic Health Corp. (Dallas)	health care management	$5.4	$26.9	(395%)	$274.2	(919%)
LSI Logic Corp. (Milpitas, CA)	semi-custom logic arrays	--	5.0	(---)	34.8	(596)
Apollo Computer (Chelmsford, MA)	computer systems	--	18.1	(---)	80.6	(345)
Seagate Technology (Scotts Valley, CA)	winchester disk drives	31.9	79.1	(148)	222.0	(289)
Allnet Communications Services (Chicago)	long-distance telecommunications	37.1	34.7	(-7)	181.1	(244)
Micro D Inc. (Fountain Valley, CA)	computer equipment distributor	--	25.3	(---)	71.0	(181)
Morrow Designs (San Leandro, CA)	microcomputer manufacturer	--	10.5	(---)	29.0	(176)
Xebec Inc. (Sunnyvale, CA)	rigid disk drive controllers	14.7	26.6	(81)	82.0	(169)
Health Group Inc. (Nashville)	medical facilities	3.0	81.8	(2,623)	204.0	(150)
Kelly-Johnson Enterprises Inc. (OK)	restaurant management	13.7	40.8	(198)	94.9	(150)
Softsel Computer (Inglewood, CA)	personal computer software	7.0	35.0	(400)	87.0	(149)
Digital Research (Pacific Grove, CA)	microcomputer software	--	18.8	(---)	44.6	(137)
Marc's (Middleburg Heights, OH)	discount drug/variety stores	17.0	25.0	(47)	55.0	(120)
Home Depot Inc. (Atlanta)	home improvement services	51.8	118	(128)	256.1	(118)
Priam Corp. (San Jose, CA)	rigid disk drives	6.0	42.6	(610)	90.3	(112)
PEOPLExpress (Newark, NJ)	airline	38.4	139	(262)	292.0	(110)
Emulex Corp. (Costa Mesa, CA)	controllers for DEC computers	13.5	23.8	(76)	46.9	(110)
MicroPro International (San Rafael, CA)	business software	5.0	22.3	(346)	44.9	(101)
Data Switch (Norwalk, CT)	computer switching systems	--	18.2	(---)	36.2	(99)
Tandon Magnetics (Chatsworth, CA)	computer peripherals	54.0	150.0	(178)	343.9	(94)

Source: "Venture Fast-Track 100," Venture, July 1983 and July 1984.